SAMSUNG

1 Precautions
2 Product Overview
3 Connections
4 Screen Adjustment
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6 Other Information

DLP PROJECTOR

Owner's Instructions

# SP-D400S

Manual Regulatory Reader

※ To avoid injuries or damage to property, please read the following precautions carefully and use the product accordingly.

**Warning** Failure to follow the instructions marked with this symbol may cause personal injury or even fatality.

**Notice** Failure to follow the instructions marked with this symbol may cause personal injury or damage to the product or property.

| Power Related | Installation Related | Cleaning and Use Related |

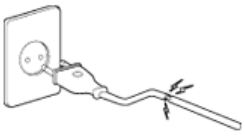
## Power Related

[The images here are for reference only, and are not applicable in all cases (or countries).]

### Warning

Insert the power plug firmly so that it does not come loose.

- When the connection is not firm, it may cause a fire.

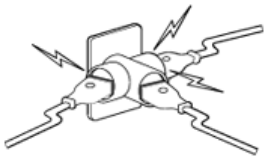


Do not use loose power outlets or damaged power cables.

- There is a danger of electric shock or fire.

Under no circumstances touch the power plug with wet hands.

- There is a danger of electric shock.



Do not plug multiple devices into a single wall outlet.

- There is a danger of fire.

Do not bend the power cord excessively or place heavy objects on it.

- There is a danger of electric shock or fire.

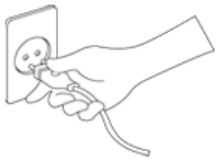
Before moving the product, make sure the power is off and remove the power cord from the wall outlet. In addition, make sure all connection cables are disconnected from other devices before moving it.

- Moving the product without disconnecting the power cord may damage the power cord and cause electric shock or fire.

To disconnect the apparatus from the mains, the plug must be pulled out from the mains socket, therefore the mains plug shall be readily operable.

- There is a danger of electric shock or fire.

Notice



Always unplug the unit by holding the power plug. Pulling the power cable may damage the inside of it.

- There is a danger of fire.

Unplug the power plug before cleaning the product.

- There is a danger of electric shock or fire.



## Installation Related

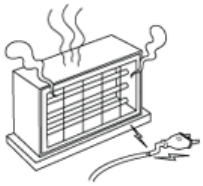
Warning

TO PREVENT THE SPREAD OF FIRE, KEEP CANDLES OR OTHER OPEN FLAMES AWAY FROM THIS PRODUCT AT ALL TIMES.

- There is a danger of fire.

When installing the product in a cabinet or on a shelf, make sure the front end of the base does not protrude.

- Dropping the product may damage it or cause injury.



Keep the power cord away from heaters.

- The coating of the power cord may melt and cause electric shock or fire.

Do not install the product in locations exposed to oil, smoke, moisture or water (rainwater), or in a vehicle.

- There is a danger of electric shock or fire.

Do not install the product in locations with poor ventilation such as a bookshelf, closet, etc.

- An increase in the internal temperature may cause a fire.

Do not install on an unstable location, or on a stand smaller than the product.

- Make sure to keep the product out of the reach of children.
  The product may fall and cause personal injury.

In case of thunder/lightning, disconnect the power cord from the wall outlet.

- There is a danger of electric shock or fire.

**Notice**

Make sure the product's vents are not blocked by a table cloth or curtain.

- An increase in the internal temperature may cause a fire.

Place the product on the ground carefully.

- Doing so may cause damage or injury.

Do not drop the product while carrying it.

- Doing so may cause damage or injury.

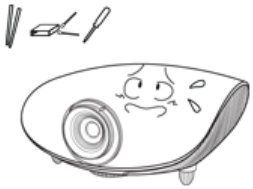
Keep the product out of children's reach.

- Make sure to keep the product out of the reach of children.
  The product may fall and cause personal injury.

| Power Related | Installation Related | Cleaning and Use Related |

## Cleaning and Use Related

**Warning**



Do not insert metal items, such as chopsticks, steel wire, gimlets, or inflammable objects such as matches or paper into the product through the ventilating openings and the PC/Video and power terminals.

- This may cause electric shock or fire.
  If water or an alien substance enters the product, turn the product off, disconnect the power cord from a wall outlet and contact a Service Center.

Do not disassemble, or attempt to fix or modify the product.

- When the product requires repairs, contact a Service Center.

Do not use or keep the product near flammable sprays or other such substances.

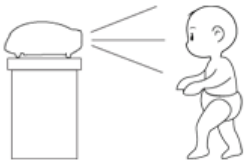
- There is a danger of fire or explosion.

Do not place containers with water, vases, drinks, chemicals, small metal parts or heavy objects on the product.

- If water enters the product, it may cause electric shock, or fire and when heavy objects fall, it may cause injury.

Do not let children place objects such as toys or cookies on the product.

- If a child tries to reach for any of these objects, the product may fall and cause harm.



Do not look directly at the light of the lamp nor project the picture onto eyes.

- This is dangerous especially for children.

When you remove batteries from the remote, be careful that they are not swallowed by children. Keep batteries out of the reach of children.

- If swallowed, see a doctor immediately.

## Notice

If the product emits smoke, unusual noise, or there is a burning smell,disconnect the power plug immediately, and contact a Service Center.

- There is a danger of electric shock or fire.

If the power plug pin or jack is exposed to dust, water or alien substances, clean it thoroughly.

- There is a danger of electric shock or fire.

When cleaning the product, disconnect the power cord and wipe the product using a soft dry cloth.

- Do not use any chemicals such as wax, benzene, alcohol, thinners, insecticide, air freshener, lubricant or detergent.

When not using the product for an extended period of time, disconnect the power plug.

- Otherwise, this may cause heat emission from the accumulated dirt or degraded insulation, leading to electric shock or fire.

Do not install the product in places with heavy dust, chemical substances, high or low temperatures, high humidity, or where it will be operated for a long period continuously etc.

If the product is dropped or the casing is damaged, turn the product off and unplug the power cord.

- This may cause electric shock or fire. Contact a Service Center.

Make sure to place your remote control on a table or desk.

- If you step on the remote control, you may fall and hurt yourself or the product may be damaged.

## Correct Disposal of This Product (Waste Electrical & Electronic Equipment) – Europe only

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household waste at the end of its working life. To prevent possible harm to the environment or damage to health from uncontrolled waste disposal, please separate this from other types of waste and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

## Correct disposal of batteries in this product – alleen voor Europa

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

| Product Features | Product Views | Remote Control | Product Specifications |

## Product Features

### 01 Optical engine with advanced DLP technology

- 1024 x 768 panel has been adapted.
- 4 segment color wheel to implement optimal colors.
- 280 W Lamp designed to improve luminance

### 02 Vivid colors

- Quality picture tuning focused on improving color - this unit aims at realizing color coordinates that meet broadcasting standards on video production.

### 03 Minimized fan noise and light leakage

- The airflow and fan installation structure are optimized to minimize fan noise and beam leakage.

### 04 Various Input Ports

- Connections to peripheral devices have been improved by adopting various input terminals such as an HDMI (HDCP supported) terminal, a Component terminal, and a PC OUT terminal.

### 05 User adjustments

- This unit allows adjustment of each input port.
- The unit has a reference pattern that can be used for positioning and adjustment.

| Product Features | Product Views | Remote Control | Product Specifications |

## Product Views

Front/Upper Side

### 1. Indicators
- STAND BY (Blue LED)
- LAMP (Blue LED)
- TEMP (Red LED)

※ Refer to the LED Indications.

### 2. Focus Ring
Used for Focus Adjustment.

### 3. Remote Control Signal Receiver

### 4. Lens

### 5. Adjustable Feet
You can adjust the screen position by moving the adjustable feet up and down.

### 6. Zoom Knob
Used to enlarge or reduce image size.

### 7. POWER(⏻) Button
Used to turn the projector on or off.

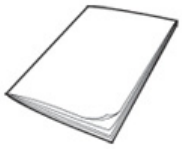
### 8. SOURCE Button
Used to select input signals from the external sources.

### 9. MENU Button
Use this button to enter or exit a menu or to move forward in a menu.

### 10. Select and Move Button(↵ / ∧ ∨ < >)
Use this button to move to or select an item within a menu.

The buttons on the top of the projector are touch buttons.
Touch them lightly with your fingers to use them.
The label is attached to the bottom of the product.

## Unpacking



Quick Installation Guide

Warranty Card/ Registration Card
(Not available in all locations)

User Manual CD

Power Cable

Remote Control/ 1 Batteries
(Not available in all locations)

Cleaning Cloth

Sold separately

D-Sub Cable

## LED Indications

●:Light is On ◐:Light is Blinking ○:Light is Off

| STAND BY | LAMP | TEMP | Information |
|---|---|---|---|
| ● | ○ | ○ | If you press the POWER button on the remote control or projector, the screen appears within 30 seconds. |
| ● | ● | ○ | The projector is in normal operating condition. |
| ● | ◐ | ○ | This state appears when the projector is preparing an operation after the POWER button on the projector or the remote control has been pressed. |
| ○ | ◐ | ○ | The POWER button is pressed to turn off the projector, and the cooling system is in operation to cool off the inside of the projector. (Lasts for about 1 minute and 30 seconds) |
| ◐ | ○ | ◐ | Refer to Action 1 below if the cooling fan inside the projector is not in normal operation condition. |
| ○ | ◐ | ◐ | Refer to Action 2 below if the lamp cover protecting the lamp unit is not closed properly. |
| ○ | ○ | ◐ | Power is turned off automatically when temperature inside of the projector goes beyond the control limit. Refer to Action 3. |
| ● | ◐ | ◐ | A problem has occurred when operating the DDP IC in the product. Refer to Action 4. |
| ◐ | ◐ | ◐ | A problem has occurred with the operation of the lamp. Refer to Action 5. |
| ● | ◐ | ● | The lifetime of the lamp has expired. Refer to Action 6. |
| ◐ | ◐ | ○ | The memory in the product is not operating normally. Contact a service center. |
| ◐ | ◐ | ● | The power for the product is not operating normally. Contact a service center. |
| ◐ | ● | ◐ | A problem has occurred when operating the color wheel in the product. Refer to Action 4. |

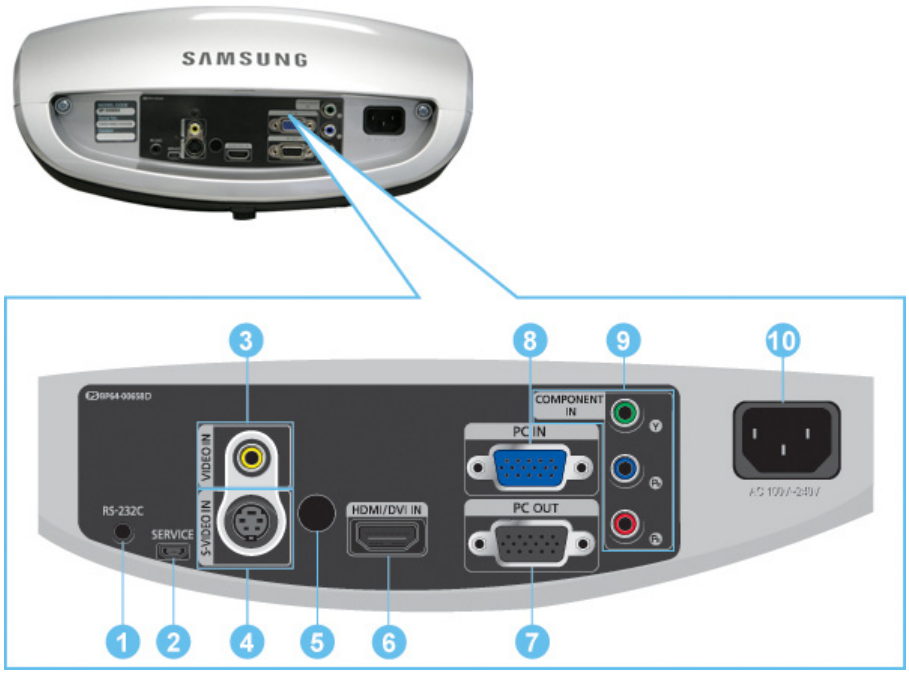
## Clearing Indicator Problems

| Classification | State | Measures |
|---|---|---|

| | | |
|---|---|---|
| Action 1 | When the cooling fan system is not in normal operating condition. | If the symptom remains even after disconnecting and then reconnecting the power cord and turning the projector on again, contact your product provider or our service center. |
| Action 2 | When the lamp cover protecting the lamp unit is not properly closed or the sensor system is not in normal operating condition. | Check whether the screws at the bottom side of the projector are fastened correctly. If they are abnormally fastened, contact your product distributor or service center. |
| Action 3 | When temperature inside of the projector becomes too high. | Adjust the installation state of your projector by referring to the Installation Precautions section listed above. Cool down your projector sufficiently and then operate it again. If the same problem occurs continually, contact your product distributor or service center. |
| Action 4 | When the color wheel fails to operate. | Disconnect and reconnect the power cord and start the projector again. If the same symptom still occurs, contact your product distributor or service center. |
| Action 5 | The lamp malfunctions after power turns off abnormally or after powering on right after turning off the projector. | Turn the power off, wait for a sufficient amount of cooling time and then turn the power on to operate. If the same problem occurs continually, contact your product distributor or service center. |
| Action 6 | When the screen becomes darker | Check the lamp usage time on the Information Display screen. If you need to replace the lamp, contact your product distributor or service center. |

This Projector uses a cooling fan system to keep the unit from overheating. Operation of the cooling fan may cause noise, which does not affect the product performance and is part of normal operation.

## Rear Side




1. RS-232C port (For service input terminals)  6. HDMI/DVI IN Input port

2. SERVICE Input port

3. VIDEO IN Input port

4. S-VIDEO IN Input port

5. Remote Control Signal Receiver

7. PC OUT terminal

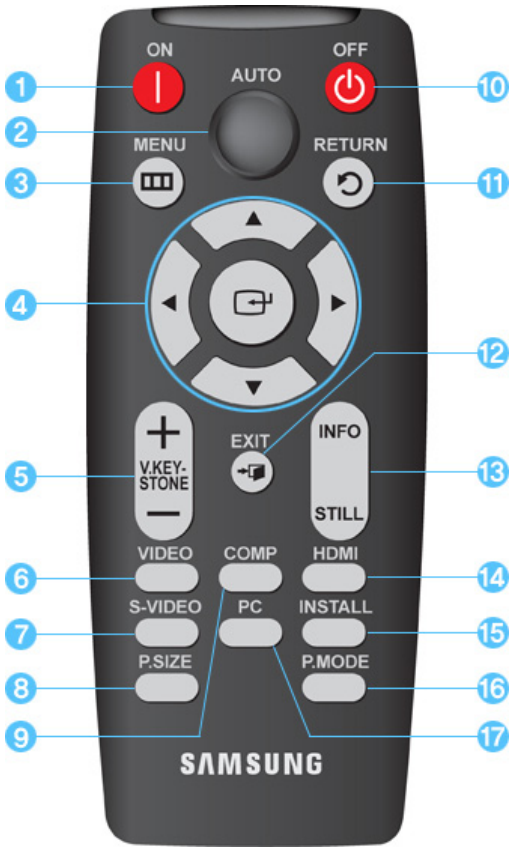
8. PC IN Input port

9. COMPONENT IN Input port

10. POWER Input port



## Remote Control




1. ON ( | ) Button
2. AUTO Button
3. MENU (▥) Button
4. Move (▲ ▼ ◀ ▶)/(↵) Button
5. V.KEYSTONE(+/-)
   (VERTICAL KEYSTONE)Button
6. VIDEO Button
7. S-VIDEO Button
8. P.SIZE Button
9. COMP Button
10. OFF (⏻) Button
11. RETURN (↩) Button
12. EXIT (→▯) Button
13. INFO STILL Button
14. HDMI Button
15. INSTALL Button
16. P.MODE Button
17. PC Button

1. ON ( | )
   Used to turn on the projector.

2. AUTO
   Adjusts the Picture automatically. (Available in PC Mode Only)

3. MENU (▥)
   Used to display Menu Screen.

4. Move (▲ ▼ ◀ ▶)/ (↵)
   Used to move to or select each menu item.

5. V.KEYSTONE(VERTICAL KEYSTONE) (+/-)
   Use this when video scenes are distorted or tilted.

6. VIDEO

Used to switch to VIDEO Mode.

7. S-VIDEO
   Used to switch to S-VIDEO Mode.

8. P.SIZE
   Used to adjust the size of picture screen.

9. COMP
   Used to switch to COMPONENT Mode.

10. OFF (⏻)
    Used to turn off the projector.

11. RETURN (↩)
    Returns to the previous menu.

12. EXIT (→)
    Used to make Menu Screen disappear.

13. INFO STILL
    INFO: Used to check source signals, picture setup, PC screen adjustment and lamp lifespan.
    STILL: Used to see still images.

14. HDMI
    Used to switch to HDMI Mode.

15. INSTALL
    Used to flip or reverse the projected image.

16. P.MODE
    Used to select Picture Mode.

17. PC
    Used to switch to PC Mode.



## Product Specifications

**Design and specifications of the product may be modified without prior notice for better performance.**

### Specifications

| | | |
|---|---|---|
| **Model** | | SP-D400S |
| Panel | Size | 16.5 mm / 0.65 inch |
| | Resolution | XGA (1024 x 768) |
| | Manufacturer | Texas Instrument |
| | Type | 280 W |
| Lamp | Life Time | 2,500 Hours |
| | Manufacturer | Philips |
| Color | | 18.9 M (1024 x 768 x 3 x 8bit) |
| Resolution | Optimum resolution | 1024 x 768 @ 60Hz |
| | Maximum resolution | 1280 x 1024 @75Hz |
| Input video signal | | Video, S-Video, Component, Analog PC, HDMI |
| Input synchronization signal | | Separate H/V sync, TTL |
| Maximum Pixel Clock | | 136.75 MHz |

| | | | |
|---|---|---|---|
| Diagonal screen size | | 40 ~250 inch | |
| Projection Range | | 1 ~10 m | |
| Power | Power Consumption | Less than 350W | |
| | Voltage | 110/220 Vac +/-10 %, 50/60 Hz +/-3 Hz | |
| Noise | | Eco : 31dB, Bright : 33dB | |
| Dimensions | | 343.1 mm(W)x162.4 mm(H)x347.2 mm(D)<br>13.5 inches(W) x 6.4 inches(D) x 13.7 inches(H) | |
| Weight | | 5.8 kg / 12,8 lb | |
| Key Features | Brightness | Max 4,000 ANSI lumen | |
| | Contrast | 3,000:1 | |
| | Keystone | Vertical | |
| User Environment | Temperature and Humidity | Operating | Temperature 32 °F ~ 104 °F (0 °C ~ 40 °C),<br>Humidity (10 % ~ 80 %) |
| | | Storage | Temperature -4 °F ~ 113 °F (-20 °C ~ 45 °C) ,<br>Humidity (5 % ~ 95 %) |

This Class B equipment is designed for home and office use. The equipment has been registered regarding EMI for residential use. It may be used in all areas. Class A is for office use. Class A is for business while class B emits less electromagnetic waves than class A.

The DMD Panel used in DLP Projectors consists of several hundred thousand micro mirrors. As with other visual display elements, the DMD Panel may include a few bad pixels. Samsung and the DMD Panel manufacturer have a rigid, bad pixel identification and limitation procedure in place and products will not exceed the maximum number of bad pixels set by our standards. Rarely, non-displayable pixels may exist, however it does not affect the picture quality nor the lifespan of the product.

## Supported Display Modes

| Input Source | Resolution (HxV) | Horizontal Sync | | Vertical Sync | | Pixel Frequency [MHz] | Sync Type |
|---|---|---|---|---|---|---|---|
| | | Frequency [kHz] | polarity | Frequency [Hz] | polarity | | |
| PC | 640X350 | 31.47 | P | 70.1 | N | 25.18 | Sep. |
| | | 37.86 | P | 85.1 | N | 31.5 | Sep. |
| | 640X400 | 37.86 | N | 85 | P | 31.5 | Sep. |
| | 640X480 | 31.47 | N | 60 | N | 25.175 | Sep. |
| | | 35.00 | N | 66.7 | N | 30.24 | Sep. |
| | | 37.86 | N | 72.8 | N | 31.5 | Sep. |
| | | 37.5 | N | 75 | N | 31.5 | Sep. |
| | | 43.27 | N | 85 | N | 36 | Sep. |
| | 720X400 | 31.47 | N | 70 | P | 28.322 | Sep. |
| | 800X600 | 35.16 | P | 56.3 | N | 36 | Sep. |
| | | 37.88 | P | 60 | P | 40 | Sep. |
| | | 48.08 | P | 72.2 | P | 50 | Sep. |
| | | 46.87 | P | 75 | P | 49.5 | Sep. |
| | | 53.67 | P | 85 | P | 56.25 | Sep. |
| | 832X624 | 49.73 | N | 75 | N | 57.28 | Sep. |
| | 1024X768 | 48.36 | N | 60 | N | 65 | Sep. |
| | | 56.4 | N | 70 | N | 75 | Sep. |
| | | 60.02 | P | 75 | P | 78.75 | Sep. |
| | | 68.68 | P | 85 | P | 94.5 | Sep. |
| | 1152X864 | 67.5 | P | 75 | P | 108 | Sep. |
| | 1152X870 | 68.68 | N | 75 | N | 100 | Sep. |
| | 1280X768 | 47.78 | N | 60 | P | 79.5 | Sep. |
| | 1280X960 | 60 | P | 60 | P | 108 | Sep. |
| | 1280X1024 | 63.98 | P | 60 | P | 108 | Sep. |
| | | 79.98 | P | 75 | P | 135 | Sep. |
| | | 55.94 | N | 60 | P | 106.5 | Sep. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Component | 1440X900 | 70.64 | N | 75 | P | 136.75 | Sep. |
| | 1920X1080i | 33.72 | P | 60 | P | 74.18 | Sep. |
| | | 28.125 | P | 50 | P | 74.25 | Sep. |
| | 1280x720p | 45 | P | 60 | P | 74.25 | Sep. |
| | | 37.5 | P | 50 | P | 74.25 | Sep. |
| | 720x480p | 31.5 | P | 60 | P | 27 | Sep. |
| | 720x576p | 31.25 | P | 50 | P | 27 | Sep. |
| | 640X350 | 31.47 | P | 70.1 | N | 25.18 | Sep. |
| | | 37.86 | P | 85.1 | N | 31.5 | Sep. |
| | 640X400 | 37.86 | N | 85 | P | 31.5 | Sep. |
| | 640X480 | 31.47 | N | 60 | N | 25.175 | Sep. |
| | | 37.5 | N | 75 | N | 31.5 | Sep. |
| | 720X400 | 31.47 | N | 70 | P | 28.322 | Sep. |
| | 800X600 | 37.88 | P | 60 | P | 40 | Sep. |
| | | 46.87 | P | 75 | P | 49.5 | Sep. |
| | 1024X768 | 48.36 | N | 60 | N | 65 | Sep. |
| | | 60.02 | P | 75 | P | 78.75 | Sep. |
| HDMI | 1280X768 | 47.78 | N | 60 | P | 79.5 | Sep. |
| | 1280X960 | 60 | P | 60 | P | 108 | Sep. |
| | 1280X1024 | 63.98 | P | 60 | P | 108 | Sep. |
| | | 79.98 | P | 75 | P | 135 | Sep. |
| | 1920x1080i | 33.72 | P | 60 | P | 74.18 | Sep. |
| | | 28.125 | P | 50 | P | 74.25 | Sep. |
| | 1280x720p | 45 | P | 60 | P | 74.25 | Sep. |
| | | 37.5 | P | 50 | P | 74.25 | Sep. |
| | 720x480p | 31.5 | P | 60 | P | 27 | Sep. |
| | 720x576p | 31.25 | P | 50 | P | 27 | Sep. |
| | 720x480i | 15.73 | P | 60 | P | 13.5 | Sep. |
| | 720x576i | 15.63 | P | 50 | P | 13.5 | Sep. |

## Supported Resolution/Size Modes

○ : Size & Overscan can be configured, x : Size & Overscan cannot be configured, △ : Size can be configured

| Source | | | Picture Size | | | |
|---|---|---|---|---|---|---|
| Input | Type | Mode | Normal | Zoom1 | Zoom2 | 16:9 |
| HDMI | HD | 1080i | O | △ | △ | O |
| | | 720p | O | △ | △ | O |
| | SD | 576p | O | △ | △ | O |
| | | 480p | O | △ | △ | O |
| | | 576i | O | △ | △ | O |
| | | 480i | O | △ | △ | O |
| | DVI | VESA | △ | x | x | △ |
| Component | HD | 1080i | O | △ | △ | O |
| | | 720p | O | △ | △ | O |
| | SD | 576p | O | △ | △ | O |
| | | 480p | O | △ | △ | O |
| | | 576i | O | △ | △ | O |
| | | 480i | O | △ | △ | O |
| VIDEO & S-VIDEO | SD | 576i | △ | △ | △ | △ |
| | | 480i | △ | △ | △ | △ |
| PC | HD | 1080i | △ | x | x | △ |
| | | 720p | △ | x | x | △ |
| | SD | 576p | △ | x | x | △ |
| | | 480p | △ | x | x | △ |
| | | 576i | △ | x | x | △ |
| | | 480i | △ | x | x | △ |
| | PC | 16:9 Mode | △ | x | x | △ |
| | | 4:3 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Mode | △ | x | x | △ |

## Picture Position Modes

The position function is not supported in HDMI, Video and S-video input.

Overscan : Off

| Source | | Picture Size | | | | |
|---|---|---|---|---|---|---|
| Input | Type | Mode | Normal | Zoom1 | Zoom2 | 16:9 |
| Component | HD | 1080i | O | O | O | O |
| | | 720p | O | O | O | O |
| | SD | 576p | O | O | O | O |
| | | 480p | O | O | O | O |
| | | 576i | O | O | O | O |
| | | 480i | O | O | O | O |
| PC | HD | 1080i | O | x | x | O |
| | | 720p | O | x | x | O |
| | SD | 576p | O | x | x | O |
| | | 480p | O | x | x | O |
| | | 576i | O | x | x | O |
| | | 480i | O | x | x | O |
| | PC | 16:9 Mode | O | x | x | O |
| | | 4:3 Mode | O | x | x | O |

Overscan : On

| Source | | Picture Size | | | | |
|---|---|---|---|---|---|---|
| Input | Type | Mode | Normal | Zoom1 | Zoom2 | 16:9 |
| Component | HD | 1080i | O | O | O | O |
| | | 720p | O | O | O | O |
| | SD | 576p | O | O | O | O |
| | | 480p | O | O | O | O |
| | | 576i | O | O | O | O |
| | | 480i | O | O | O | O |

DLP PROJECTOR
SP-D400S

# Basic Settings

## Installing the Projector

Install the projector so that the beam from the projector is perpendicular to the screen.

- Place the projector so that the lens is at the center of the screen.
  If the screen is not vertically installed, the picture on the screen may not be a rectangle.
- Do not install the screen in bright surroundings. If the screen is too bright, the picture on the screen will not be displayed clearly.
- When installing the screen in bright surroundings, use curtains.
- You can install the projector in the following locations: Front-Floor / Front-Ceiling / Rear-Floor / Rear-Ceiling.
  (To view the installation position settings)

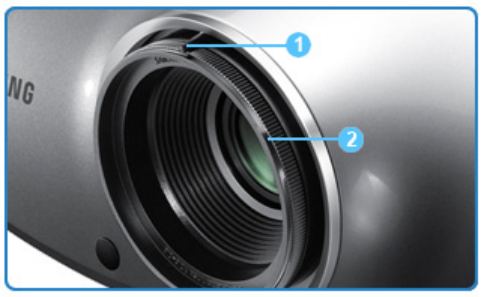
### 01 To view the picture when installing the projector behind the screen,

Install a semi-transparent screen.
Select Menu > Setup > Install > Rear-Floor

### 02 To view the picture when installing the projector in the front of the screen,

Install the projector at the side where you are watching the screen.
Select Menu > Setup > Install > Front-Floor

## Zoom and Focus Adjustment




1 Zoom Knob 2 Focus Ring

01 You can adjust the size of image within zoom range by manipulating the Zoom Knob.

02 Focus the picture on the screen using the Focus Ring.

If your product is installed at a location out of the specified projection distance (refer to Screen Size and Projection Distance), the focus cannot be adjusted correctly.

## Leveling with Adjustable Feet

For level placing of the projector, adjust the Adjustable Feet of the projector.

You may adjust the level of the projector up to 12 mm (average 3.4°) degrees.

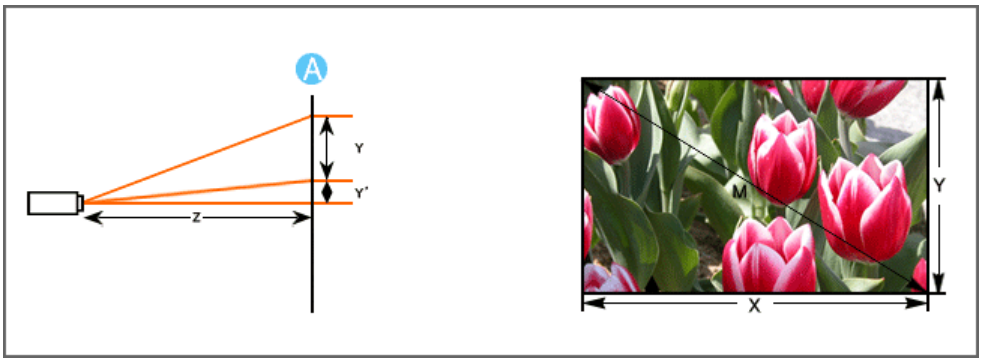
Depending on the position of the projector, Keystone distortion of image may appear.

## Screen Size and Projection Distance

Install the projector on a flat, even surface and level the projector using the adjustable feet to realize optimal picture quality. If images are not clear, adjust them using the Zoom Knob or Focus Ring, or move the projector forward and backward.

| Screen size (M:inch) | Horizental (X:mm) | Vertical (Y:mm) | Max (Z:mm) | Min (Z:mm) | Offset (Y':mm) |
|---|---|---|---|---|---|
| 30 | 609.6 | 457.2 | 1300 | 1110 | 57 |
| 40 | 812.8 | 609.6 | 1730 | 1480 | 76 |
| 50 | 1016.0 | 762.0 | 2150 | 1840 | 95 |
| 60 | 1219.2 | 914.4 | 2580 | 2210 | 114 |
| 70 | 1422.4 | 1066.8 | 3010 | 2570 | 133 |
| 80 | 1625.6 | 1219.2 | 3430 | 2940 | 152 |
| 90 | 1828.8 | 1371.6 | 3860 | 3300 | 171 |
| 100 | 2032.0 | 1524.0 | 4290 | 3670 | 191 |
| 110 | 2235.2 | 1676.4 | 4710 | 4040 | 210 |
| 120 | 2438.4 | 1828.8 | 5140 | 4400 | 229 |
| 130 | 2641.6 | 1981.2 | 5560 | 4770 | 248 |
| 140 | 2844.8 | 2133.6 | 5990 | 5130 | 267 |
| 150 | 3048.0 | 2286.0 | 6420 | 5500 | 286 |
| 160 | 3251.2 | 2438.4 | 6840 | 5860 | 305 |
| 170 | 3454.4 | 2590.8 | 7270 | 6230 | 324 |
| 180 | 3657.6 | 2743.2 | 7700 | 6600 | 343 |
| 190 | 3860.8 | 2895.6 | 8120 | 6960 | 362 |
| 200 | 4064.0 | 3048.0 | 8550 | 7330 | 381 |
| 210 | 4267.2 | 3200.4 | 8980 | 7690 | 400 |
| 220 | 4470.4 | 3352.8 | 9400 | 8060 | 419 |
| 230 | 4673.6 | 3505.2 | 9830 | 8420 | 438 |
| 240 | 4876.8 | 3657.6 | 10260 | 8790 | 457 |
| 250 | 5080.0 | 3810.0 | 10680 | 9160 | 476 |

This projector is designed to show images optimally on a 80 ~ 120 inch sized screen.

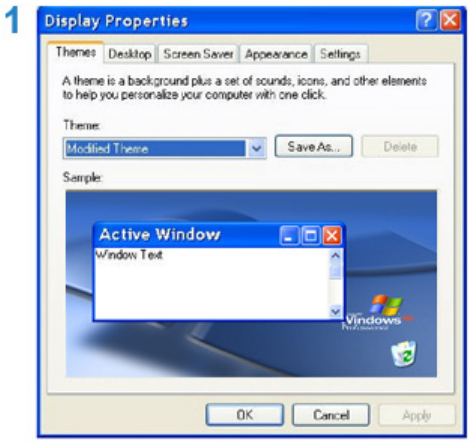



A. Screen

- Z: Throw Distance
- Y': Distance from Lens Center to Image Bottom

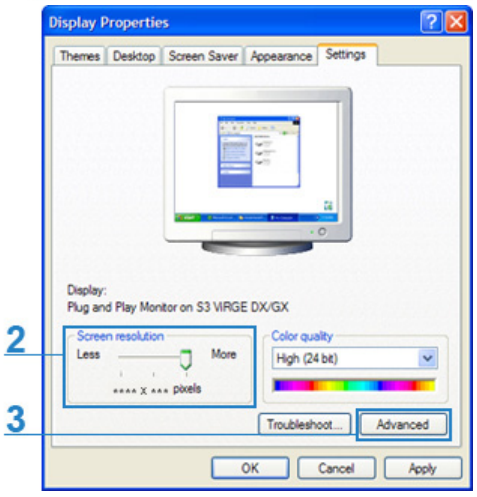
**Setting up the PC Environment** – Check the following items before connecting your PC to your projector.

1. Click the right mouse button on the Windows desktop and click on [Properties].
   <Display Properties> tab will appear.

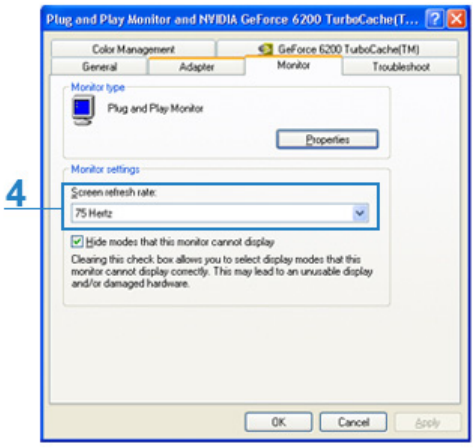



2. Click on [Settings] tab and set the <Screen resolution> by referring to <Resolution> described in the display mode table supported by this projector.
   You do not have to change <Color quality> setup.

3. Press the [Advanced] button.
   Another property window will appear.




4. Click on [Monitor] tab and set the <Screen refresh rate> by referring to <Vertical Frequency> described in the Supported Resolution/Size Modes table.
   Set up both the vertical and horizontal frequency instead of <Screen refresh rate>.



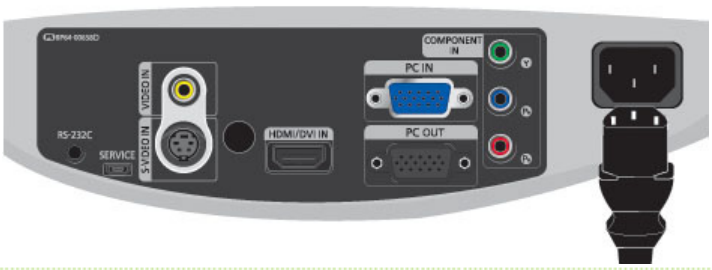

5. Click the [OK] button to close the window, and click the [OK] button of the <Display Properties> window to close the window.
   The computer may restart automatically.

6. Shut down the PC and connect to the projector.

- Process might vary depending on your type of computer or Windows versions.
  (For example, [Properties] appears instead of [Properties (R)] as shown in 1.)
- This unit appliance supports up to 24 bits per pixel in Color quality when it is used as a PC monitor.
- Projected images may differ from the monitor depending on monitor manufacture or Windows versions.
- When connecting the projector to a PC, check that PC setup complies to display settings supported by this projector. If not, there may be signal problems.



## Connecting the Power



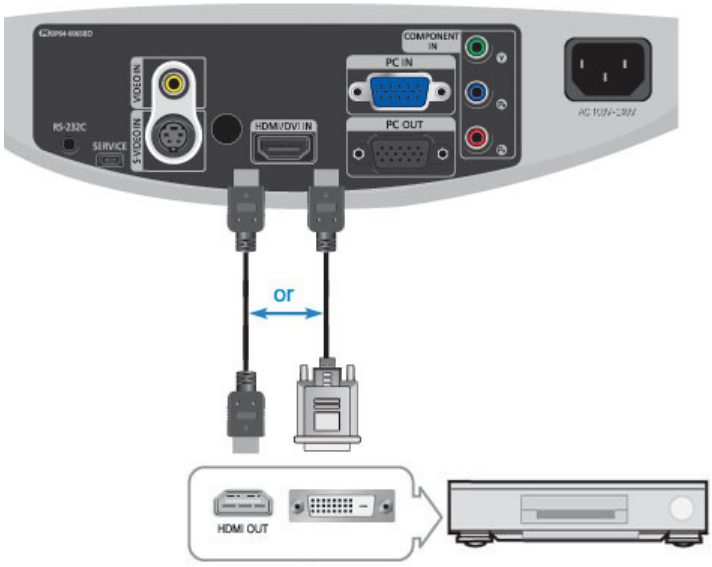

### 1. Rear of Projector

01 Plug the power cord into the power terminal on the rear side of the projector.

- When used outside of the U.S., HAR cord with fittings of an approved agency may be used.

# Connecting to video equipment

## Connecting a DVD player/Cable/Satellite Box to HDMI/DVI




01 – Connecting using an HDMI/DVI cable

Connect the [HDMI/DVI IN] terminal on the back of the projector and the DVI output terminal of the DVD player/Cable/Satellite box using a HDMI/DVI cable.

– Connecting using an HDMI cable

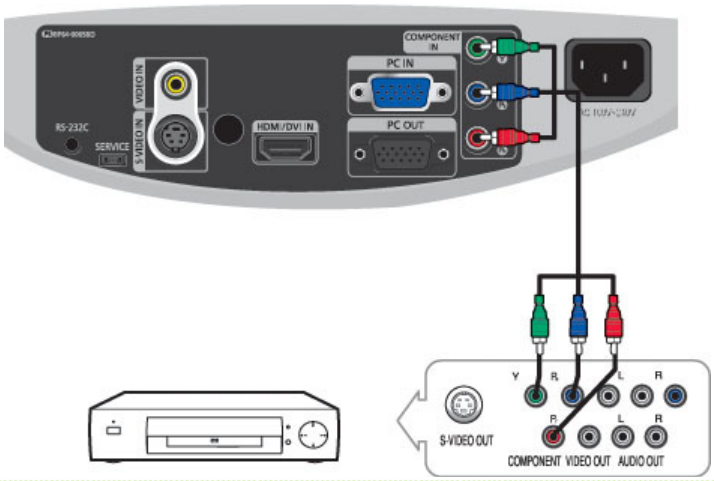
Connect the [HDMI/DVI IN] terminal on the back of the projector and the HDMI output terminal of the DVD player/Cable/Satellite box using a HDMI cable.

02 When the connection is finished, connect the power of your projector and DVD player/Cable/Satellite box.

## Using the Projector

01 Turn on the projector and press the [HDMI] button to select <HDMI>.

## Connecting a DVD player/Cable/Satellite Box via Component




01 Connect the [COMPONENT IN (Y/PB/ PR)] input port at the back of the projector to the Component port at the back of the DVD player/Cable/Satellite box with the Component cable.

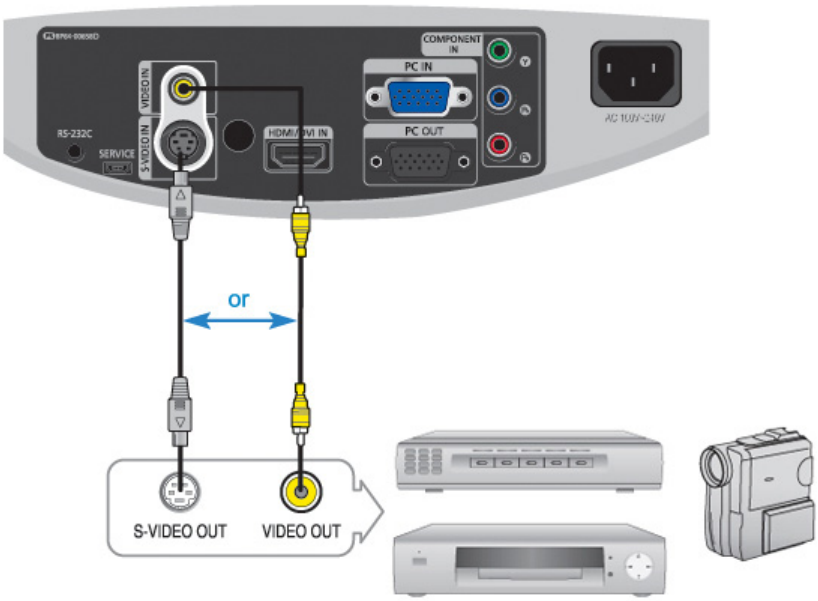
02 When the connection is finished, connect the power of your projector and DVD player/Cable/Satellite box.

## Using the Projector

01 Turn on the projector and press the [COMP] button to select <Component>.

» Component Ports are marked as (Y/PB/PR), (Y, B-Y, R-Y) or (Y, Cb, Cr) depending on the manufacturer.

## Connecting to VCR/Camcorder




01 Connect [VIDEO IN(yellow)] input port of the projector to the VIDEO (yellow) OUT port of video equipment using the video cable.

- If the video equipment has S-VIDEO OUT port, connect it to [S-VIDEO IN] input port of the projector. Using the S-VIDEO connection, provides a higher visual quality.

02 When finishing connecting the devices, connect the power of the projector and the VCR.

## Using the Projector

01 Turn on the projector and press the [Video] button to select <Video>.

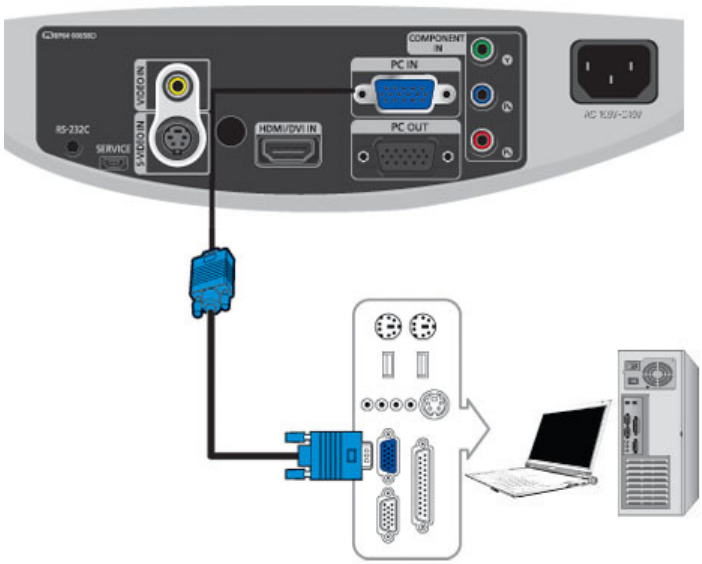
or

02 Press the [S-VIDEO] button to select S-Video.

» Check that the projector and the video equipment are turned off before connecting cables.

» This projector does not support sound. (Separate audio system is needed for sound.)

## Connecting to PC




01 Connect [PC IN] port on the rear side of the projector to the monitor output port of the PC using a PC video cable.

02 When connections are all completed, connect both power cords of the projector and the PC.

This product supports plug and play, therefore you do not need to install a driver on your PC.

## Using the Projector

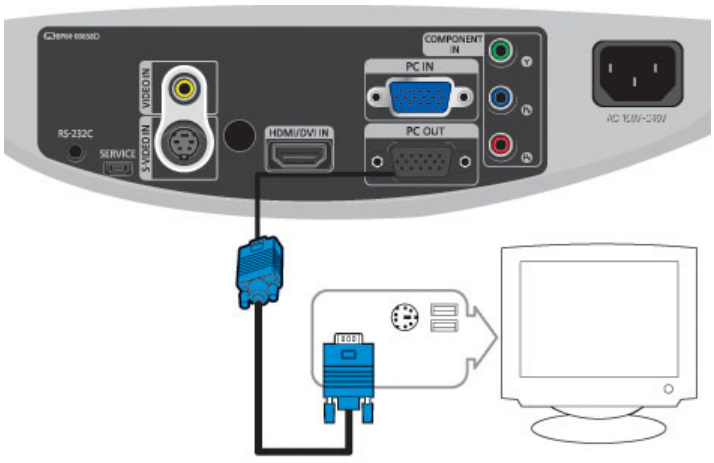
01 Turn on the projector and press the [PC] button to select <PC>.
If PC Mode is not available, check PC video cable is in place.

02 Turn on the PC and set the PC Environment when necessary.

03 Adjust the screen.(Auto Adjustment)

Sound comes out from PC speakers.

## Connecting Video Devices (Monitor, TV, etc.)




01 - When using the D-sub (analog) output through another video device (monitor, TV, etc.).

Connect the PC OUT terminal of the projector and the D-sub terminal of the video device using a D-sub cable.

02 After connecting them, turn on your projector and the video device (monitor, TV, etc.).

The PC OUT function only operates when the projector is connected to an external device through the [PC IN]

input terminal.

## Input

* Click the Play()/Stop() button in the table below to view the video file.

| Screen Adjustment | Description | | Play/Stop |
|---|---|---|---|
| Source List | You can select a device connected to the projector to display. | | |
| | 1) Component | 4) PC | |
| | 2) S-Video | 5) HDMI | |
| | 3) Video | | |
| Edit Name | You can edit the names of devices connected to the projector. | | |
| | 1) VCR | 7) DVD Receiver | |
| | 2) DVD | 8) Game | |
| | 3) Cable STB | 9) Camcorder | |
| | 4) HD STB | 10) DVD Combo | |
| | 5) Satellite STB | 11) PC | |
| | 6) AV Receiver | | |



## Picture

* Click the Play()/Stop() button in the table below to view the video file.

| Screen Adjustment | Description | Play/Stop |
|---|---|---|
| Mode | Select a screen state which is customized to your projector or change the screen mode as required.<br><br>1) Mode<br>– Dynamic<br>Select this mode for a brighter and sharper picture than Standard Mode.<br>– Standard<br>This is the picture mode optimized to the standard broadcast signal.<br>– Monitor1<br>This is the brightest picture mode appropriate for a presentation.<br>– Monitor2<br>This is the picture mode where the brightness is optimized for text display.<br>– Movie<br>This is the picture mode optimized for watching a movie in a dark environment.<br>– Game<br>Select this when to enjoy a more vivid gaming experience.<br>– Sports<br>Provides the optimal picture quality for sports. You can enjoy more thrilling picture.<br>– User<br>Select this if you want to view the screen in your customized screen Mode. You can set this in Mode-Save.<br>▶ The default setting is [Monitor 1]. | Mode |
| | 2) Contrast : Used to adjust the contrast between the object and the background.<br>3) Brightness : Used to adjust brightness of the entire picture.<br>4) Sharpness : Used to adjust the sharpness of the picture.<br>5) Color : Used to adjust color lighter or darker.<br>▶ You can only adjust Color in [S-Video] and [Video] modes.<br>6) Tint : Used to obtain more natural color of objects using Green or Red enhancement.<br>▶ You can only adjust Tint in [S-Video] and [Video] modes. | Contrast<br>Brightness<br>Sharpness<br>Color<br>Tint |
| | 7) Color Temperature : You can change tint of the entire screen to suit your needs.<br>▶ This cannot be used in [Monitor1] and [Sports] modes.<br>– 5500K : Used to deliver optimal image quality for black-and-white films. | |

- **6500K** : This is the color temperature that is applied for most movie productions and enables the most precise color representation.
- **8000K** : This color temperature is appropriate for very bright places and is the defaut setting for Dynamic Picture Mode. The sharpness and brightness are emphasized.
- **9300K** : The color temperature appropriate to very bright places such as a shop.

1) Color Temperature
2) R-Gain
3) G-Gain
4) B-Gain
5) R-Offset
6) G-Offset
7) B-Offset

Color Temperature
R-Gain
G-Gain
B-Gain
R-Offset
G-Offset
B-Offset

8) **Gamma** : An image compensation function that controls the settings according to the video properties.

▶ **This cannot be used in [Monitor1] and [Sports] modes.**

- **Film** : The best setting for watching a film.
- **Video** : The best setting for watching a TV program.
- **Graphic** : The Gamma mode appropriate to the PC screen and for bright video.

Gamma

9) **Save** : Used to save custom picture settings.

Save

10) **Reset** : Restores the mode settings to the factory defaults.

Reset

**Size**

You can select a screen size according to the type of scene.

▶ Refer to "Size Support Mode".

1) Normal
2) Zoom1
3) Zoom2
4)16:9

**Position**

Adjust the screen position if it is not aligned.

▶ Refer to "Position Moving Support Mode".

**Digital NR**

When a dotted line is displayed or the screen shakes, you can view a better visual quality picture by enabling Noise Reduction.

1) Off
2) On

**Black Level**

Using the Black Level function, you can set the light level of the darkest portion of the video signal so that you can clearly see dark areas on the screen.

▶ **The Black Level can only be selected in [Video], [S-Video] and [HDMI] modes.**

▶ For [Video] and [S-Video] Modes

1) **0 IRE** : Sets the light level of the darkest portion of the video signal to low. If the setting does not match the input signal, the dark screen looks milky-white.
2) **7.5 IRE** : Sets the light level of the darkest portion of the video signal to high. If the setting does not match the input signal, the dark screen is saturated and may not display properly.

▶ For [HDMI] Mode

1) **Low** : Set the brightness standard for dark signals to a low setting.
If the input signal is an '**HDMI-Video**' type, unclear screens are displayed normally.
2) **Normal**: Set the brightness standard for dark signals to a high setting.
If the input signal is an '**HDMI-PC**' type, dark screens are displayed bright.

**Overscan**

Using this function, you can cut the edge of the picture when unnecessary information, images appear on the edge of the picture.

▶ Refer to "Size Support Mode".

1) Off
2) On

| | | |
|---|---|---|
| Film Mode | Using this function, you can set the display mode optimized for playing movies.<br>▶ Film Mode is only supported for [Video], [S-Video] and [Component].<br>1) Off<br>2) On | |
| PC | Eliminates or reduces noise that causes unstable screen quality, such as screen shaking. If the noise is not removed using Fine Adjustment, adjust the frequency to the maximum and then perform Fine Adjustment again.<br>Only activated in the PC environment.<br>1) Auto Adjustment : Used to adjust frequency and phase of PC screen automatically.<br>2) Coarse : Used to adjust frequency when vertical lines appear on PC screen.<br>3) Fine : Used to fine tune the PC screen.<br>4) Reset : Using this function, you can reset the PC menu settings to the factory default settings. | Auto Adjustment<br>Coarse<br>Fine<br>Reset |
| Zoom | You can enlarge a specific part of the screen and can look at that part in detail.<br>1) ×1<br>2) ×2<br>3) ×4 | |



## Setup

* Click the Play()/Stop() button in the table below to view the video file.

| Screen Adjustment | Description | Play/Stop |
|---|---|---|
| Install | To tailor the picture to the installation location, you can invert the projected images vertically/horizontally. | |

1) **Front-Floor** : Normal Image
2) **Front-Ceiling** : Horizontal/Vertical Reversed Image
3) **Rear-Floor** : Horizontally Reversed Image
4) **Rear-Ceiling** : Vertically Reversed Image

**Lamp Mode** Used to set the image brightness by adjusting the amount of light generated by the lamp.

1) **Eco** : Using this function, you can adjust the light level of the lamp so that you can comfortably watch pictures on the screen even when watching under dark conditions. It also lowers power consumption and extends the life of the lamp.
2) **Bright** : Used to enhance the brightness in relatively bright ambient light. Since this mode increases the light level of the lamp, you may experience more noise which is produced when the projector is cooled down.

Eco

Bright

**V-Keystone** If video scences are distorted or tilted, you can compensate for this using the vertical Keystone function.

**Background** When there is no signal from the broadcasting station or the external device connected to the projector, the screen is changed to blue or black.
If a signal is received, the desktop background color disappears and a normal screen is displayed.

1) **Blue**
2) **Black**

**Test Pattern** Generated by the projector itself. Utilized as standard to optimize the installation of the projector.

1) **Crosshatch** : You can check whether the picture is distorted or not.
2) **Screen Size** : You can refer to picture format sizes such as 1.33:1 or 1.78:1.
3) **Red** : Red Screen, only for color adjustment.
4) **Green** : Green Screen, only for color adjustment.
5) **Blue** : Blue Screen, only for color adjustment.
6) **White** : White Screen, only for color adjustment.
7) **6500K_White** : White Screen, shows brightest white color possible.

▶ The Red/Green/Blue colors of the test patterns are only for the color adjustment procedures, and may not comply with the actual colors displayed during video playback.

**Factory Default** Using this function, you can reset various settings to the factory default settings.

Option

* Click the Play()/Stop() button in the table below to view the video file.

| Screen Adjustment | Description | Play/Stop |
|---|---|---|
| Language | You can select the Language used for the menu screen.<br>1) English 7) Nederlands<br>2) Deutsch 8) Português<br>3) Français 9) Русский<br>4) Italiano 10) 中国语<br>5) Svenska 11) 한국어<br>6) Español | |
| Menu Option | You can adjust the settings related to the menu screen.<br>1) Position : You can move the location of the menu to a new position (up/down/right/left).<br>2) Transparency : Selects the transparency of the menu screen.<br>1) Opaque<br>2) Low<br>3) Medium<br>4) High<br>3) Display Time : You can set the display time of the menu screen.<br>1) 5 sec 5) 90 sec<br>2) 10 sec 6) 120 sec<br>3) 30 sec 7) Stay On<br>4) 60 sec | Position<br>Translucency<br>Display Time |
| Auto Power On | 1) On: When power is supplied, the product operates automatically.<br>2) Off: When power is supplied, the product enters Standby mode. To operate the product, you have to press the Power button on the remote control or key panel. | |
| Sleep Timer | 1) Off : Operates continually until you turn the power off manually.<br>2) 10 min/20 min/30 min : When the configured time has passed, the projector turns to Standby mode.<br>▶ This function only runs when the no signal state is maintained continuously. | |
| Information | You can check external source signals, picture setup, PC picture adjustment and lamp use time. | |

# Before Contacting Service Personnel

## Installation and Connection

| Symptoms | Troubleshooting |
|---|---|
| No Power. | • Check the power cable connections. |
| I want to install my projector on the ceiling. | • The ceiling installation support is sold separately. Contact your local product distributor. |
| External Source can not be selected. | • Be sure that the connection cable(s) (video) is properly connected to the proper port. If the device is not connected properly, it can not be selected. |

## Menu and Remote Control

| Symptoms | Troubleshooting |
|---|---|
| Remote control does not work. | • Check whether your remote control is at a right angle and at the correct distance. Remove any obstacles between your remote control and the product.<br>• Direct lighting of 3-way light bulbs or other lighting device on the remote sensor of the projector may affect the sensitivity and cause the remote control to malfunction.<br>• Check if the remote control battery is empty.<br>• Check whether the LED indicator on the top of the projector is turned on. |
| I cannot select a menu. | • Check if the menu is displayed in gray. A gray-colored menu is unavailable. |

## Screen and External Source

| Symptoms | Troubleshooting |
|---|---|
| Cannot see picture images. | • Be sure that the power cord of the projector is connected.<br>• Be sure that the proper input source is selected.<br>• Check that the connectors are properly connected to the ports at the back of the projector.<br>• Check the Remote Control batteries.<br>• Be sure that the <Color>, <Brightness> settings are not at their lower limit. |
| Poor color. | • Adjust the <Tint> and <Contrast>. |
| Images are not clear. | • Adjust the focus.<br>• Check that the projection distance is either too far or too near to the screen. |
| Strange noise. | • If a strange sound continues, contact our service center. |
| The operating LED is lit up. | • Refer to Corrective Actions According to LED Indications. |
| Lines appear on screen. | • Because noise may occur when using your PC, adjust the frequency of the screen. |
| No external device screen is displayed. | • Check the operating status for the external device and check whether the adjustment items, such as the Brightness and the Contrast have been changed correctly in the <Mode> command screen of the Projector menu. |
| Only blue screen appears. | • Be sure to properly connect the external devices. Check the connection cables again. |
| Screen appears in black and white or | • As mentioned above, check the adjustment items such as the Brightness, |

| | |
|---|---|
| odd color./ screen is too dark or bright. | Contrast and Color in the menu.<br>● If you want to restore various settings to their factory defaults, run <Factory Default>from the menu. |

# Care and Maintenance

## To clean the exterior and lens of the projector

Clean the projector using a soft dry cloth.

- Do not clean the projector with flammable substances such as benzene, thinners or a wet cloth, as these may cause problems.
- Do not touch the projector with a nail or any other sharp objects, as this may scratch the surface.

## To clean the interior of the projector

For cleaning the interior of the projector, ask your Service Center or a distributor.

- Contact your distributor or a Service Center if dust or other substances are inside the projector.

## Lamp Replacement

### Cautions on Lamp Replacement

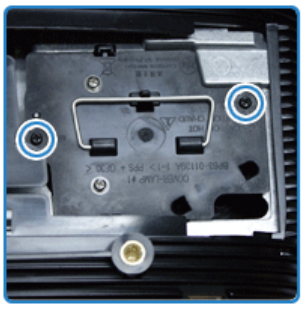
- The projector lamp is an expendable item. For best operating performance, replace the lamp according to the usage time. You can view the lamp usage time in the Information Display (INFO button).
- Use the recommended lamp when replacing. Lamp specifications are defined in the user's manual. Replace with the same model provided with the projector.
  - Lamp Model Name : 280W Philips fusion lamp
  - Lamp Manufacture : Philips Lighting
  - Lamp Life Time : 2500Hrs
  - Lamp Type : 280W UHP
- Check that the power cord is unplugged before replacing the lamp.
- Even after the power cord has been disconnected, the lamp will be hot. Allow it to cool down for at least 1 hour before changing the lamp.
- The lamp is located at the left rear of your projector.
- Before you turn the projector over to change the lamp, cover the projector with a soft cloth on a flat surface.
- Do not leave the old lamp near inflammables or in reach of children. There is a danger of burn or injury.
- Remove dirts or foreign materials around or inside the lamp unit using a proper vacuum device.
- When handling the lamp, avoid touching any part of it except for the handles. If you handle the lamp incorrectly, it may affect the screen quality and shorten its lifetime.

**Contains Mercury, Dispose According to Local, State or Federal Laws**

### Lamp Replacement Procedure

1. The lamp is very hot and operates with a high voltage. Allow it to cool down for at least 1 hour after disconnecting the power cord before changing the lamp.
2. The lamp is located at the bottom of the product.
   Place the product so that its bottom looks upward and remove the screws that hold the lamp cover in place.
   * When placing the product with the bottom upwards, make sure to place a soft cloth on the floor to prevent scratches.
3. Slide and open the cover in the direction of the arrow, as shown in the figure.

4. Remove the screws as shown in the figure.
5. As shown in the figure, lift up the lamp handles by holding them and pull the lamp.



Assembling a new lamp is in the reverse order of the disassembly.



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# Other

## Glossary

### Analog Broadcast
An existing broadcasting signal transmitted by a broadcasting station in accordance with the NTSC standard.

### ANTENNA IN Port
This is the port for connecting a TV antenna using a coaxial cable. It is generally used to watch public broadcast programs.

### Black Level
Black Level sets the light level of the darkest portion of the video signal to match that of the display's black level

capability so that users can clearly view dark visuals. If the setting does not match the input signal, the dark screen is saturated and may not display properly or the dark screen looks milky-white.

### Cable Broadcast

Cable Broadcast broadcasts programs via cable instead of radio waves. To view cable broadcasts, you have to subscribe to your local cable broadcast service provider and install an additional receiver.

### Color Standard

A pre-determined default color standard determined by the broadcasting standard of the corresponding country or area.

### Color Temperature

Color temperature is a simplified way to characterize the spectral properties of a light source. A low color temperature implies a warmer (more yellow/red) light while a high color temperature implies a colder (more blue) light.

### COMPOSITE IN Port

A COMPOSITE IN Port is a general video input port (yellow). Both chrominance and luminance are transmitted on the same 75-ohm cable.

### Component Port (Green, Blue, Red)

The Component Port separately transmits the luminance signal.

### Digital Broadcast

Digital Broadcast is a television broadcasting signal digitized and transmitted according to the United States terrestrial digital broadcast specifications, or ATSC.

### DVD (Digital Versatile Disc)

DVD is a large capacity media disk that can save multimedia content such as video, games, audio applications, etc. using MPEG-2 video compression technology on a CD size disc.

### DLP (Digital Light Processing)

DLP is a digital display technology using a DMD panel developed by TI (Texas Instruments) of the United States.

### DLP HD2, DC2, DC3

This is a grade of DMD panel.

### DMD (Digital Micromirror Device)

A DMD panel is an implementation of DLP technology. It consists of microscopic mirrors where each mirror represents a pixel.

### External Input

External Input is connecting video devices such as a VCR, camcorder, DTV receiver, DVD, etc. to the projector as a video source.

### Gamma Mode

Gamma Mode compensates the video signal produced for analog display devices such as a CRT (Cathode Ray Tube) so that the video signal can be clearly displayed on a digital display device.

### HDMI

▶ HDMI(High-Definition Multimedia Interface), is an interface that enables the transmission of digital audio and video signals using a single cable.

▶ The difference between HDMI and DVI is that the HDMI device is smaller in size and has the HDCP (High Bandwidth Digital Copy Protection) coding feature installed.

### Overscan

Overscan cuts the edge of the picture when there is unnecessary information, images or noise at the edge of the picture. For extremely poor video signals, some unnecessary video signals may be displayed on the screen.

### RS-232C Port (Service Input Port)

This port is provided for service purposes. This port provides data communication in accordance with the RS-232C communication standard.

### S-Video IN Port

This is called super video. S-Video is a type of video signal which has the video brightness and color signal separated in order to provide a better image quality.

### Satellite Broadcast

Satellite Broadcast broadcasts programs via satellite so that the program can be viewed in all area in a high visual and sound quality. Approximately 100 channels including public broadcast channels are provided. To view satellite broadcasts, you have to install an additional receiver.

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